



ENVIRONMENTAL STUDY

Northern Utah County, Utah
UDOT Project No. S-R399(35)
PIN 6463



VINEYARD
c o n n e c t o r

November 2008


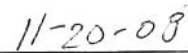
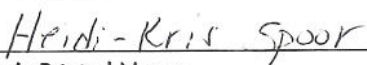
Prepared for the Utah Department of Transportation by
HDR Engineering, Inc.
3995 South 700 East, Suite 100
Salt Lake City, Utah 84107

Environmental Study Documentation

Project Name	Vineyard Connector		
Project No.	S-R399(35)	PIN	6463
Prepared by	Sue Lee, HDR Engineering, Inc.	Date	November 18, 2008
Address	3995 S. 700 E., Suite 100, Salt Lake City, UT 84107	Phone	(801) 743-7811

REQUIRED SIGNATURES

I have reviewed the information presented in this Environmental Study and
I hereby attest that the document is complete and the details of the document
are correct.

	
Reviewer Signature	Date
	
Reviewer's Printed Name	

STATE-FUNDED PROJECTS

As a result of this Environmental Study, UDOT finds that this project will NOT
cause significant environmental impacts.

Review/Approved		
	UDOT Region 3 Environmental	Date
		
	Reviewer's Printed Name	

Action Alternative Impacts and Mitigation Summary

Resource	Impact(s)	Mitigation
<i>Agriculture and Farmland</i>		
	<ul style="list-style-type: none"> • Direct impact to two designated Agriculture Protection Areas. • Direct impact to about 42 acres of actively farmed cropland, about 8 acres of pasture, and about 2 acres of idle farmland. 	<ul style="list-style-type: none"> • To ensure that impacts to all active farming operations related to crop production, grazing, and milk production are minimized, UDOT will work with affected landowners to determine the level of impact to the viability of each farming operation on a case-by-case basis as design moves forward and right-of-way is acquired. UDOT will also work directly with property owners to ensure that access to property is maintained. Impacts to farmland property and buildings will be compensated according to the requirements of the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970, as amended, and state guidelines.
<i>Land Use</i>		
	<ul style="list-style-type: none"> • Potential impacts to the planned land-use patterns and planned local road networks of the cities of American Fork and Lindon. 	<ul style="list-style-type: none"> • UDOT will continue to work with Utah County and the governments of American Fork, Lindon, Vineyard, and Orem to ensure that access to and from the Vineyard Connector (VC) meets the jurisdictions' needs as well as UDOT's standards for access control with a focus on maximizing the desired land use of properties along and near the new road.
<i>Hazardous, Toxic, and Radiological Waste Sites</i>		
	<ul style="list-style-type: none"> • New road would cross through two known hazardous waste sites. One site, the former Geneva Steel plant site, is currently undergoing remediation, so no additional mitigation is proposed. The second site, Consolidated Red-E-Mix, has been remediated but is still identified by the State of Utah as a hazardous waste site. 	<ul style="list-style-type: none"> • During construction, if workers encounter previously undocumented soil contamination or hazardous waste sites anywhere along the alignment, all activity in the affected area will stop until the hazard is evaluated and appropriate protection measures can be implemented consistent with the UDOT Standard Specification that addresses hazardous materials discovered during construction (Section 01355, Part 1.6). UDOT or its contractor will give special attention to those areas where potentially hazardous sites are within 0.25 mile of the Action Alternative. • The contractor will ensure that workers comply with the UDOT Standard Specifications that address the use of hazardous materials on the construction site (Section 01355, Part 1.7).

Resource	Impact(s)	Mitigation
<i>Noise</i>		
	<ul style="list-style-type: none"> The Action Alternative would increase noise levels throughout the corridor. Depending on the distance from the alignment, noise levels would increase by as much as 10 to 15 dBA (A-weighted decibels) over existing levels, depending on the proximity to the roadway and other terrain features (for example, berms and absorptive vegetation such as grasses and agricultural crops). There are no residential subdivisions along the proposed alignment, but there are scattered residences where noise levels would increase due to the proposed project. At the scattered residences (about 20) within about 500 feet of the alignment, noise levels would likely increase by 10 dBA or more due to the project. 	<ul style="list-style-type: none"> No mitigation is proposed. Based on existing conditions (very low-density residential) and noise analyses conducted for other transportation corridors in similar low-density residential areas, noise abatement (mitigation) would not be reasonable and/or feasible for the Action Alternative under UDOT's Policy 08A2-1. Building a noise barrier for one or two residences that would reduce noise levels sufficiently to meet UDOT's criterion of a 5-dBA reduction would exceed the maximum amount considered reasonable in Policy 08A2-1, which is \$30,000 per benefiting residence. Typically, more than five residences would need to benefit from a single noise-abatement measure to meet this cost criterion. There are no locations along the VC where five or more homes would benefit from a noise-abatement measure.
<i>Vegetation, Fish, and Wildlife</i>		
Habitat Fragmentation	<ul style="list-style-type: none"> The Action Alternative would fragment some wildlife habitats, primarily the lower-quality pasture habitat. Since these pastures are agricultural lands, they are subject to land practice changes by the land owner, such as changes in irrigation, conversion to plowed croplands, or being sold for residential or commercial uses (as is much of the agricultural land in northern Utah County). 	<ul style="list-style-type: none"> No mitigation is proposed. In most cases, the affected pasture habitat is of low quality for wildlife and is already subject to frequent impacts or future loss.
Vegetation, Fish, and Wildlife Habitats	<p>The Action Alternative would result in direct effects as follows:</p> <ul style="list-style-type: none"> Open water and riparian areas: 0.4 acre of open water and 0.8 acre of riparian at the American Fork River Wetlands: 1.43 acres of palustrine emergent wetland Pasturelands and farmlands: 18 acres of pastureland and 82 acres of land actively used for agriculture (includes land within city limits that is not tracked by the Natural Resources Conservation Service) Disturbed sites: 80 acres Landscaped and developed areas: 39 acres 	<ul style="list-style-type: none"> The riparian areas near the American Fork River that are disturbed by construction will be restored after construction, and this restoration will include planting representative native woody species (willows and cottonwoods) to compensate for the loss of riparian habitat in this area. UDOT will compensate for permanent impacts to wetlands through its Northern Utah County Wetland Mitigation Bank.

Resource	Impact(s)	Mitigation
Non-avian Species	<ul style="list-style-type: none"> Impacts to the habitats could affect wildlife species that inhabit or otherwise use these areas for forage or travel to other habitats. Construction-related impacts to the American Fork River. 	<ul style="list-style-type: none"> The riparian areas near the American Fork River that are disturbed by construction will be restored after construction, and this restoration will include planting representative native woody species (willows and cottonwoods) to compensate for the loss of riparian habitat in this area. UDOT will compensate for permanent impacts to wetlands through its Northern Utah County Wetland Mitigation Bank. To mitigate effects to common aquatic species, best management practices (BMPs) will be used, such as silt fencing, bank stabilization, hazardous spill protocols, confining construction activities to a minimum degree in aquatic areas, and constructing during low-flow times of the year. If construction takes place when the American Fork River is flowing, UDOT or its contractor will develop a dewatering plan in coordination with regulating resource agencies.
Avian Species	<ul style="list-style-type: none"> Potential impacts to migratory birds that nest in the project right-of-way 	<ul style="list-style-type: none"> To avoid direct impacts to migratory birds, UDOT or its construction contractor will conduct project-related tree and shrub removal during the non-nesting season (about August 1 to March 30). If trees and shrubs must be removed during the nesting season (April 1 through July 31), UDOT or its contractor will conduct preconstruction surveys of the area that would be disturbed no more than 3 days prior to ground-disturbing activities to determine if active bird nests are present. If active nests are found, the construction contractor will leave them untouched until the young have fledged.
Special-Status Species	<ul style="list-style-type: none"> Potential impacts to nesting long-billed curlews Potential impacts to nesting raptors 	<ul style="list-style-type: none"> To avoid any impacts to possible nesting long-billed curlews within the VC right-of-way, UDOT will conduct preconstruction surveys of long-billed curlew habitat along the alignment if clearing and construction will occur during the courtship and nesting season of the year (about April 1 through June 30). If any nesting long-billed curlews are located during this time, any right-of-way clearing will be delayed until after about June 30, when the young chicks have hatched and are mobile, at which time the family units move to other areas for feeding. Alternatively, the clearing and construction could occur between July 1 and March 31 without preconstruction surveys, which would avoid any impacts to nesting long-billed curlews. If clearing and grubbing and construction will take place between February 1 and June 30, UDOT will conduct raptor surveys within 0.5 mile of the VC right-of-way to be sure that the area is clear of raptor nests that could be affected by construction. If any active raptor nests are found in the survey area, a biologist will determine the potential for affecting the nesting raptors, and construction within 0.5 mile of the nest(s) will be delayed (if necessary) or monitored to ensure that nesting raptors are not adversely affected by construction. If construction will take place between July 1 and January 31, clearing and grubbing and construction can be conducted without preconstruction surveys.

Resource	Impact(s)	Mitigation
<i>Water Resources</i>		
Floodplains	<ul style="list-style-type: none"> The Action Alternative would cross regulatory floodplains associated with the American Fork River, Utah Lake, and Grove Creek (Hollow Ditch). 	<ul style="list-style-type: none"> If necessary, UDOT or its construction contractor will obtain floodplain development permits for the segment(s) of the proposed roadway that would encroach on the regulatory floodplain of the American Fork River, Utah Lake, or Grove Creek. The culvert structure at Grove Creek will be designed to meet the more stringent of Federal Emergency Management Agency (FEMA) requirements or local floodplain ordinances. UDOT or its construction contractor will obtain a stream-alteration permit from the Utah Division of Water Rights for crossings of waters of the state, including the American Fork River and Grove Creek. UDOT or its construction contractor will file a General Permit application with the Utah Division of Forestry, Fire, and State Lands to obtain an easement over and/or upon the stream beds. Roadway elevations will be above adjacent floodplain elevations of the American Fork River and Grove Creek so that flooding will not interfere with a transportation facility needed for emergency vehicles or evacuation. For impacts to the Utah Lake floodplain, UDOT will continue to evaluate drainage and floodplain connectivity issues with the intent of minimizing or avoiding impacts that would worsen local flooding conditions. The Action Alternative will cross several drainage ditches that are not regulated by FEMA. For these crossings, UDOT will use the UDOT Manual of Instruction – Roadway Drainage to determine the design flow for the structures (that is, the flow that the structure will be designed to accommodate).
Water Quality	<ul style="list-style-type: none"> The Action Alternative would add about 122 acres of new impervious (paved) surface. In areas of shallow groundwater, the proposed roadway embankments could compact the underlying soils and alter the groundwater flow. The Action Alternative right-of-way would pass over 42 permitted points of diversion. 	<ul style="list-style-type: none"> Planned detention or retention features will be constructed to help ensure that stormwater runoff does not affect beneficial uses. Detention or retention features will not be constructed in any existing wetland areas. During the final design phase of the project, UDOT will perform detailed geotechnical evaluation and analysis and identify project-related impacts to groundwater flows. If shallow groundwater is affected by the project, flow to groundwater-dependent resources will be maintained by including features such as equalization culverts or other subsurface water-conveyance structures. As final design progresses, UDOT will work directly with the owners and/or operators of any affected points of diversion. UDOT will strive to protect these 42 points of diversion and maintain the water supply to affected water right owners. If points of diversion cannot be protected, UDOT will ensure that wells or surface points of diversion are replaced and that the replaced wells are properly abandoned.

Resource	Impact(s)	Mitigation
Waters of the United States	<ul style="list-style-type: none"> The Action Alternative would directly affect 1.17 acres of jurisdictional ditches and 1.43 acres of palustrine emergent wetland. Project construction could indirectly or temporarily affect the hydrology of jurisdictional features that will not be permanently removed by the Action Alternative. 	<ul style="list-style-type: none"> UDOT will compensate for permanent wetland impacts using mitigation credits from the Northern Utah County Mitigation Bank. UDOT will minimize impacts to the American Fork River and unnamed ditches by converting the minimum length necessary to piped flow. If water is flowing at the time of construction, UDOT or its construction contractor will implement BMPs that ensure water quality protection during and following construction. UDOT will prevent and minimize indirect and temporary impacts by using standard BMPs designed to prevent erosion and sedimentation related to dust or stormwater. UDOT will also place high-visibility fencing around areas to be preserved to prevent physical encroachment by construction equipment or personnel. The high-visibility fencing will remain in place until all construction activity in the area is complete.
<i>Social Environment</i>		
Community and Neighborhood Cohesion and Quality of Life	None	No mitigation is proposed.
Relocations	<ul style="list-style-type: none"> The Action Alternative would result in three residential relocations and four business relocations. 	<ul style="list-style-type: none"> If residences or farms need to be acquired to obtain right-of-way for the VC, UDOT must comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601 et seq., as amended in 1989). The act provides for uniform and equitable treatment of all people displaced from their homes, businesses, and farms without discrimination on any basis. The guidelines used by UDOT for carrying out the provisions of this act are contained in its 2007 Relocation Assistance Brochure. UDOT will work with landowners whose access is affected by construction of the VC to either maintain existing access(es) or provide new access(es). If access cannot be maintained or relocated, UDOT will work with the affected landowners consistent with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.
Recreation	<ul style="list-style-type: none"> Construction activities associated with the Action Alternative could affect access to the Lakeshore Trail and Lindon Boat Harbor. 	<ul style="list-style-type: none"> UDOT will ensure that access to the Lindon Boat Harbor and the Lakeshore Trail is maintained during construction. UDOT or its construction contractor will place signs in advance of construction to warn users of upcoming construction activities. The signs will include information about anticipated construction dates and alternate routes and will provide a phone number for users to call for more information. If there are times when access might be limited or temporarily closed, UDOT or its contractor will coordinate with the appropriate land manager.

Resource	Impact(s)	Mitigation
Utilities	<ul style="list-style-type: none"> The Action Alternative would directly affect electrical transmission facilities, natural-gas facilities, cable television lines, irrigation lines, sanitary sewer lines, water lines, and telephone lines. 	<ul style="list-style-type: none"> Prior to construction, UDOT or its contractor will coordinate with Blue Stakes of Utah Utility Notification Center, Inc. (Blue Stakes) to ensure compliance with the Damage to Underground Utility Facilities Act (Utah Administrative Code 54-8a-2 through 54-8a-11). Blue Stakes will be notified at least 2 business days before the start of construction-related excavation but not more than 7 calendar days before construction-related excavation. Notices of excavation to Blue Stakes are valid for 14 calendar days. If excavation lasts more than 14 calendar days, the contractor will give notice for each succeeding 14-calendar-day period. To ensure that inconveniences to customers are minimized, UDOT will work closely with utility service providers to ensure that service interruptions are minimized. Once interruption or outage schedules are developed, UDOT or its construction contractor will notify all affected utility customers of planned outages or interruptions in service at least 7 calendar days before the scheduled outage or interruption. Customers will be notified by direct mailings, by placing notices on affected properties, or by both mailings and notices. All mailings and notices will provide contact information for a person who can answer questions about the outage or interruption.
Economics	<ul style="list-style-type: none"> The Action Alternative would affect some existing businesses along the alignment. The acquisition of right-of-way would require four business relocations and proximity impacts would cause some additional loss of property. 	<ul style="list-style-type: none"> UDOT will provide signage to assure potential customers that businesses in or near the construction area are open and will ensure that access is maintained to all property during construction. All relocations will be done in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, which mandates the uniform and equitable treatment of property owners and renters of homes, businesses, or farms that are acquired by federal and federally assisted programs.
<i>Cultural Resources</i>		
	<ul style="list-style-type: none"> Four known archaeological sites that are eligible for the National Register of Historic Places (NRHP) and one known NRHP-eligible architectural property would be directly affected by the Action Alternative. Of these impacts, only one is adverse. 	<ul style="list-style-type: none"> Appropriate mitigation for impacts to the property at 1545 West 800 North in Orem will be negotiated between UDOT, the Utah State Historic Preservation Office (SHPO), and interested parties. These measures will mitigate the impacts to this resource to the greatest extent feasible. UDOT will ensure the protection, evaluation, and treatment of any historic property discovered prior to or during construction. UDOT Standard Specifications Section 01355, Part 1.13, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites, Human Remains, or Migratory Avian Species, will be enforced during this project. This specification stipulates procedures to be followed if any archaeological, historic, or paleontological resources and/or human remains are discovered during construction of the project.

Resource	Impact(s)	Mitigation
<i>Construction-Related Impacts</i>		
Air Quality	<ul style="list-style-type: none"> Short-term increases in fugitive dust, particulates, and local pollutant emissions from construction equipment 	<ul style="list-style-type: none"> Use BMPs designed to minimize vehicle emissions and the release of fugitive dust, such as the use of modern construction equipment with adequate emission controls and site watering as needed to control dust. An emission-control plan will be submitted to the State of Utah to outline specific activities for emission control and monitoring throughout construction in accordance with state and federal requirements.
Water Quality	<ul style="list-style-type: none"> Excavation, grading, and other construction activities could increase sediment levels in stormwater runoff, and this sediment could enter nearby waterways. 	<ul style="list-style-type: none"> Because the project would disturb more than 1 acre of ground, a Utah Pollution Discharge Elimination System stormwater construction permit and a Stormwater Pollution Prevention Plan (SWPPP) will be required for construction activities, consistent with federal law. Application of BMPs specified in the SWPPP will minimize impacts to surface water.
Wetlands	<ul style="list-style-type: none"> Excavation, grading, and other construction activities could increase sediment levels in stormwater runoff, and this sediment could enter nearby wetlands. 	<ul style="list-style-type: none"> UDOT or its contractors will implement specific measures to ensure that wetland areas outside the road right-of-way are not directly affected during construction. Indirect effects from stormwater runoff will be prevented through implementation of BMPs outlined in the SWPPP.
Noise	<ul style="list-style-type: none"> Construction-related noise could be an inconvenience to residents living along or near the new road alignment. 	<ul style="list-style-type: none"> Temporary construction-related noise impacts cannot be fully mitigated. However, the impacts could be minimized by staging construction so that a single area is not subject to noise impacts for the entire duration of construction, shutting off idling equipment, and limiting construction tasks known to produce very high noise levels (such as pile driving) to times of the day when residents are less likely to be disturbed.
Visual Resources	<ul style="list-style-type: none"> During construction, the work zone would be cleared of vegetation, and the exposed bare ground would contrast visually with the surrounding rural residential and agricultural areas that viewers of the area are accustomed to seeing. Construction equipment and materials would clutter views in the construction area. 	<ul style="list-style-type: none"> As phases are completed, UDOT or its contractors will remove temporary visual impacts such as stockpiled material and stored construction equipment and will restore affected areas.
Cultural Resources	<ul style="list-style-type: none"> During construction, previously unknown archaeological, paleontological, or historical resources could be found. 	<ul style="list-style-type: none"> If previously unknown cultural resources are found, construction activities in the affected area will stop. The project plans and specifications will include Standard Specification 01355, Part 1.13, to address how the contractor would respond to such a find. The contractor will notify UDOT of the nature and exact location of the find and will not damage or remove the resource. Work immediately adjacent to the discovery will be delayed, and the Region 3 NEPA/NHPA Specialist will evaluate and provide written confirmation when work can resume.

Resource	Impact(s)	Mitigation
Wildlife	<ul style="list-style-type: none"> Construction-related impacts to wildlife would affect individuals nesting or foraging in the proposed project right-of-way. 	<ul style="list-style-type: none"> No additional protection measures are proposed.
Hazardous Waste Sites	<ul style="list-style-type: none"> Construction workers could encounter previously undocumented soil contamination or other hazardous waste sites during project work. 	<ul style="list-style-type: none"> If previously undocumented soil contamination or other hazardous waste sites are encountered during construction, all activity in the affected area will stop until the hazard is evaluated and appropriate protection measures can be implemented.
Invasive Species	<ul style="list-style-type: none"> Construction operations would remove the existing hard surfaces and established vegetation, which would expose the underlying soils to the risk of being infiltrated by invasive weeds. Materials and equipment delivered to the job site could introduce invasive weeds into the area if seeds are present in imported soil or on equipment that is not properly cleaned. 	<ul style="list-style-type: none"> Include the invasive weed BMPs in UDOT's current Standard Specifications for Road and Bridge Construction in the construction plans. Monitor compliance with the standard specification.

